

by heredity (*Lamarck's principle*), and this phase in the history of *Amphioxus* is still found inscribed upon its embryogenic development. Later on the animal adopted the habit of burying its posterior extremity in the sand; it found itself subjected to a life in a homogeneous medium; the symmetrical shapes, acting in harmony with a more ancient heredity unopposed by contrary efforts, and in accordance even with the conformation of the regions of the body which have escaped the torsion, caused the mouth, by means of successive distortions, to take its place in the plan of symmetry, and, since it was unable to regain its position in the dorsal median line, it passed over to the ventral side. Thus was brought about the new attitude and the return to a perfect symmetry on the part of the Vertebrates descending from *Amphioxus* or from analogous Vertebrids*.

XXX.—*Descriptions of new Coleoptera from East Africa.*

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THE following interesting new Colcoptera have been lent me for description. They form part of a valuable collection made by Mr. Hollis in Usambara in 1893 and 1894.

* *Amphioxus* in the adult state has not yet recovered this symmetry, as is shown by the presence on the left side of the body of a single olfactory pit, the continuity of the right half of the oral hood with the cephalic expansion of the fin, the continuity of the right metapleure alone with the ventral fin, the overlapping of the right and left muscle-segments, and, finally, the abortion of the genital organs of the left side in *Amphioxus cultellus*, from Torres Straits, and *A. lucayanus*, from the Bahamas, for which have been founded the genera *Épigonichthys* and *Asymmetron*.

The inductions by means of which we have interpreted the phenomena of torsion which are proved to take place in the development of *Amphioxus*, and the deductions which we have drawn from these phenomena with reference to the history of the reversal of the Vertebrates, are but strictly scientific applications of general laws, recognized by all in principle, but too often forgotten in each particular case. We observe, moreover, phenomena of torsion, which are analogous to the above and are explained by the principle of Lamarck, likewise in the development of many fixed animals (Cirrhipedes, Bryozoa, Echinoderms, Tunicates), in the case of the Gastropod mollusks and the Pleuronectid fishes. The rule which governs all these phenomena, and which may be termed the *rule of the fixation of attitudes*, may be expressed thus:—

When, in passing from one mode of life to another, an animal is led, in order to ensure that its organs shall perform their functions properly, to assume habitually a definite attitude, this attitude is capable of becoming fixed and hereditarily transmitted.

Cetoniidæ.

Gonochilus nigerrimus.

Entirely black and shining. Head distinctly punctured, the punctures moderately close together, but not crowded. Thorax distinctly punctured, the punctures widely separated on the back part of the disk, rather close together near the front angles; the deflexed anterior lateral margin is densely obliquely striolate. Scutellum very acuminate, with very few punctures. Elytra impressed at the suture, rather finely punctured, the punctures separated from each other by three to four diameters of a puncture. The margins behind the middle are transversely finely striolate, the striolæ extending on the margin nearly to the humeral enlargement.

This species closely resembles a species which I believe is *G. rufiventris*, but differs in being entirely black or with only the faintest tinge of brown on the pygidium. The punctuation of the thorax is much closer. The punctures on the disk of the elytra are much closer, and the transverse rugæ on the sides extend nearer to the humeral enlargement. The clypeus is slightly narrowed in front.

Length 9 lines.

Trichiidæ.

Calemetopus Hollisii, sp. n.

Black, rather narrow, depressed, pubescent. Head quadrangular in front, very slightly concave, finely and closely punctured, with sparse white pubescence; anterior margin rather strongly emarginate, with the angles rounded. Eyes very prominent. Antennæ with the club very long. Thorax at its widest part a trifle broader than the head, slightly narrowed in front and towards the base, broadest in front of the middle; clothed above with reddish-brown pubescence, with a little black on the anterior margin and near the front angle, with a streak of white scale-like hairs down the middle, and with four small white spots on each side, placed . . . Scutellum elongate-triangular, clothed with white scales. Elytra flat on the back, with the sides abruptly deflexed, considerably broader than the thorax, somewhat narrowed towards the apex, dull, obscure yellow, with the suture and margins black, the black on the suture a little dilated below the scutellum; the deflexed margins are black, with a yellow mark below the shoulder. Each elytron has several lines of black punctures. The pygidium is very prominent, conical,

shining, rather finely reticulate-striolate, with a median stripe of white scales. Anterior tibiæ simple. Tarsi very long. Body beneath shining, sparsely clothed with greyish-white pubescence. Four lateral whitish spots are visible from above.

One of the specimens has the pubescence above rather more yellow.

Length 6-7 lines.

Polyplastus ovatus, sp. n.

Oblong-ovate, moderately convex, shining, black. Thorax and scutellar area of elytra reddish yellow. Head with the forehead strongly punctured in the middle; the epistome closely and rugosely punctured, slightly narrowed in front, very gently emarginate. Thorax gently convex, a little broader than long, narrowed anteriorly from the middle, the posterior angles slightly projecting, but not very acute; the base broadly lobed in the middle, sinuate on each side. The punctures on the surface are rather large and not very close together. There is a black spot on each margin in front of the middle. Scutellum as long as broad, curvilinear, with a few very fine punctures. Elytra very strongly grooved, the grooves catennate-punctate and rather dull; the interstices very convex except near the base, of unequal width; the second broad at the base, very narrow at the apex, the fourth much narrower than the third and fifth, the sixth very narrow posteriorly. Pygidium prominent, densely and finely striolate. Anterior tibiæ with three small teeth, the second and third near together. Tarsi not very long. Mesosternal process slightly prominent, rounded. Body beneath shining, with few punctures.

Length 8 lines.

This species must, I think, be congeneric with *Polyplastus assuarius*, Janson. It is, however, a more robust and more convex insect, in which respect it resembles *Myoderma*. The form of the head is quite unlike any species of that genus, but resembles that of *Polyplastus*.

The discovery of this species is of great interest as showing more clearly the affinity of *Polyplastus* with the Trichiidæ.

Cerambycidæ.

Lygrus trifasciatus, sp. n.

Long, narrow, depressed, dull, brown. Head densely punctured, appearing granulose on the vertex; the face and

sides yellow. Eyes moderately prominent, round, emarginate above, finely granular. Thorax about one third longer than broad, with a sharp constriction just before the anterior angles, then nearly parallel to about the middle, where it becomes broader, and then gradually narrowed to the base. The upper surface is densely punctured, but on each side of the basal portion there is a space which has very few punctures. On each side there is a yellow spot extending nearly the whole length, nearly meeting the spot from the other side in front, constricted at its middle. Elytra flat, long, slightly narrowed towards the apex; yellow and light brown in nearly equal proportions; the basal area is yellow, there is a yellow fascia before the middle (narrow at the side, broad at the suture), and a yellow fascia behind the middle, a little broader at the suture than at the side. Antennæ very slender, twice the length of the entire insect, the two basal joints brown, the rest sordid yellow, the joints dusky at the tips. Legs long and very slender, the femora rather abruptly clavate, yellow, the clavate portion of the femora dark brown, the apex of the tibiæ and the tarsi dusky.

Length 7 lines.

Lamiidæ.

Monohammus Hollisii, sp. n.

Robust, dull, entirely clothed with a light brown, closely adpressed tomentum. Antennæ extending a little beyond the apex of the elytra; the basal joint stout, long, gradually enlarged towards the apex, which is black, the posterior margin and apex fringed with rather long black hair. The second joint small, black. The third joint a trifle longer than the first, with its apical half black, fringed with black hair. The following joints are more or less tipped with black. Thorax with a strong, acute, conical tubercle at the side; anterior margin a little raised above the level of the disk, which has three slightly raised spots, the anterior ones of irregular shape, the median one behind the middle somewhat resembling the Greek Ω . On each side of the disk there are some very small, slightly raised tubercles, each with a black central puncture. Scutellum orange-yellow. Elytra a little flattened at the base, evenly convex posteriorly, with numerous small punctures at the base, and some shining black tubercles, unequal in size and irregularly placed; some of the larger ones have a puncture in the centre. Each elytron is separately rounded at the apex.

Length 18 lines.

Cherostes Gahani, sp. n.

Robust, broad, clothed with light brown tomentum. Head rather narrow, the antennal tubercles separated by a narrow channel. Antennæ stout, extending to two thirds the length of the elytra; the basal joint dark brown, the rest lighter brownish grey. Thorax dark brown, with impressed parts of the disk lighter brown; lateral tubercle obtusely conical. The disk with a small median tubercle in front of the middle, somewhat the shape of the figure 8, and behind the middle is an oblong raised space, divided by an impressed line down its centre; on each side of the disk is an oval tubercle, and beyond this (nearer the anterior angle) there is a smaller round obtuse tubercle. Elytra broad, parallel-sided, only very slightly narrowed before the middle. The basal area is strongly punctured, the punctures about the shoulder rather large and often confluent; the punctures about the scutellum smaller; the punctures gradually diminish in size and disappear soon after the middle. The basal quarter is very dark brown, but there is paler pubescence about the scutellum. There is a broad pale brown fascia about the middle, somewhat M in outline; behind this the surface is again dark brown; the apical area pale brown, the pale colour ascending at the suture, with a dark brown spot at a short distance from the apex. Abdomen speckled with dark brown.

Length 15 lines.

Protopocera uniformis, sp. n.

Robust, subcylindric, dull, entirely clothed with sordid brownish-ochraceous tomentum. Antennæ and legs rather greyish. Thorax with an impressed transverse line in front, obtusely angulated in the middle, and with a similar rectilinear line near the base; the lateral tubercle small, acute. Elytra uniform, convex, with a few black shining tubercles at the extreme base, and with some black punctures below the shoulders. Mesosternal process slightly prominent, slightly angular at its apex, longitudinally impressed in the middle.

Length 12 lines.

Idactus albo-variegatus, sp. n.

Brownish black, variegated with white. Head black, the epistome and vertex variegated with white, front finely punctured. Antennæ reaching considerably beyond the apex of the elytra, white, with the apex of each joint black, the basal joint with black punctures. Thorax white, with minute

black punctures; the lateral tubercle prominent, acutely conical; the disk with fine, small, obtuse tubercles, the central one scarcely noticeable. There is a transverse quadrate black spot on the front margin, two black spots at the base, and the sides are black. Scutellum white, blackish at the sides. Elytra much broader than the thorax at the base, a little narrowed posteriorly; white, with a pale grey triangular patch at the base, a rather large black triangular spot at the middle of the side, a transverse black spot a short distance from the apex across the suture, and a small black spot on the margin; there are also some very small black dots on the suture and margin. The grey basal patch is bordered by six small tubercles, three on each elytron. The black lateral spot is marked out by about six small tubercles, and there are about six other small tubercles in the apical area. The legs are black and white in about equal proportions. Body beneath black, with a little grey pubescence.

Length 6 lines.

Stathmodera grandis, sp. n.

Pale brownish testaceous, ornamented with dark brown. Head with the front pale, yellower on the clypeus; vertex dark brown. Antennæ light brown. Thorax dark brown above, broadest at the middle, slightly narrowed in front, gently sinuate at the sides behind the middle; on the disk in front are two obscure, light brown, approximate stripes and a central one at the base; there are eight or ten rather sharply cut longitudinal grooves, extending from the base to nearly the middle of the disk (these are best seen when the insect is locked at sideways). Elytra at the base considerably broader than the thorax, gradually narrowed to near the apex, and then more rapidly narrowed, the outer apical angle of each elytron produced into a strong acute spine. The sutural area and posterior half of the elytra are brown, leaving the basal outer half of each pale testaceous, the part nearest the scutellum very dark; the posterior part is paler and shades off to brownish testaceous at the sides; each elytron has on the disk behind the middle two almost black vittæ and near the apex three nearly white spots, which, with the three on the other elytron, form a crescent; at the sides there is a very fine brown costa extending from the humeral callus to beyond the middle; there is a pale spot just above the apical spine. The legs are reddish brown, with a black velvety spot at the apex of the tibiæ. The characteristic spines on the tarsal joints are long, very acute, black.

Length $4\frac{1}{2}$ lines.